

CLAIMS

1. An industrial shredder, designed to shred materials such as plastic, wood, rubber, paper, metals and the like, comprising two counter-rotating shafts (1) parallel to each other, whereon disc-shaped blades (2) having on their profile one or more teeth (3), intercalated with spacers (4) with a thickness equal to that of the blades and a diameter smaller than that of the blades, are keyed so that the spacers (4) of one shaft are opposed to the blades (2) of the other shaft, said shafts (1) being disposed at such a distance that the blades (2) of one shaft (1) intersect with those of the other shaft to force the material poured into an upper cutting chamber (7) to be sheared between said blades,  
characterised in that, beneath at least one blade (2) a hollow support (14) is provided, which has at the top a circular profile (15) coinciding with which is disposed at least one fixed blade (17) associated with an aperture (19) and cooperating with said blade (2) to perform further cutting of the material already sheared between the opposing blades, said support (14) extending to come almost into contact with the spacer (4) opposite said blade (2) to carry out cleaning of said spacer and avoid build-up of material thereon.
2. A shredder according to claim 1, characterised in that said circular profile (15) is a substantially circular profile which surrounds the circumference of the corresponding blade (2) and is joined, on one side, to a profile (13) formed on the inside of a respective side wall (12) of the shredder and, on the other side, to the spacer (4) situated opposite said blade (2).
3. A shredder according to claim 2, characterised in that said profile (13) inside the side wall (12) is circular.
4. A shredder according to any one of the preceding claims, characterised in that said circular profile (15) continues, on the side of the spacer (4), with a further circular profile (16), which wraps partially round said spacer.
5. A shredder according to any one of the preceding claims, characterised in that a support (14) is provided beneath each blade (2) of each shaft (1).
6. A shredder according to any one of the preceding claims, characterised in that each support (14) is provided with a plurality of fixed blades (17) and of respective apertures

(19), whose shape, size and reciprocal distance are chosen according to the material and to the dimensions of the cut pieces.

7. A shredder according to any one of the preceding claims, characterised in that said fixed blades (17) consist of apertures, possibly with cutting edges, of said apertures (19) formed in said circular profile (15) of the support (14).

5 8. A shredder according to any one of the preceding claims, characterised in that said apertures (17) are rectangular, square, triangular, round, diamond-shaped or the like.

10 9. A shredder according to any one of the preceding claims, characterised in that said fixed blades (17) are disposed at a very short distance from the teeth (3) of the blades (2), for example 0.5-5 millimetres.

15 10. A shredder according to any one of the preceding claims, characterised in that said supports (14) are fixed, removable or openable.

11. A shredder according to any one of the preceding claims, characterised in that said supports (14) and/or said fixed blades (17) can be positioned at an adjustable distance from the teeth (3) of the blades (2).

20 12. A shredder according to any one of the preceding claims, characterised in that said fixed blades (17) and apertures (19) are formed on strips of sheet metal constrained to said supports (14).

25 13. A shredder according to any one of the preceding claims, characterised in that between said blades (2) of each shaft (1) are intercalated sectors (5), which surround the circumference of the corresponding spacers (4).